



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,080	01/20/2004	William Gobush	20002.0313	7157

7590 07/06/2007
John P. Mulgrew, Esq.
Swidler Berlin Shereff Friedman, LLP
Suite 300
3000 K Street, NW
Washington, DC 20007-5116

EXAMINER

LEUNG, JENNIFER

ART UNIT	PAPER NUMBER
----------	--------------

3714

MAIL DATE	DELIVERY MODE
-----------	---------------

07/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/759,080

Applicant(s)

GOBUSH, WILLIAM

Examiner

Jennifer Leung

Art Unit

3714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-36 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the Amendment and Remarks filed 3/29/2007. Claims 1-35 are pending. Claim 36 is newly added.

Claim Objections

1. Claim 28 is objected to because of the following informalities:

Claim 28(h), lines 1-3: "first plurality" should be -- second plurality --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. If claim 36 is read literally, the images in claim 26 are the same as the ones in claim 34 since both sets of images of both objects are of the first perspective. The specification on page 12 discloses that the second set of images is taken when either the camera is moved or when the object is moved. Therefore, "the first perspective view" of claim 36 should be changed to "the second perspective view". Alternatively, a limitation can be added that the camera moved its position.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 4-5, 9-14, 17-18, 21, and 24-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367 (US 2002/0173367) in view of Kiraly (US 2004/0032970).**

Re claim 1: Gobush '367 discloses a single-camera system for monitoring the movement of a striking instrument that impacts with an object (para. 0074, lines 2-7) comprising: (a) a single camera unit (para. 0074, lines 2-7; para. 0076, line 2) having a light sensitive panel (para. 0035, lines 1-3) that is capable of being focused on a field of view through which the striking instrument passes prior to striking the object (para. 0015, lines 2-10; para. 0017, lines 1-5), wherein said single camera unit is capable of shuttering or gating at least two times as the striking instrument and object pass through the field of view (para. 0017, lines 5-7; para. 0031, lines 14-16); (b) three or more contrasting areas on the striking instrument (para. 0003, lines 3-7; para. 0067, lines 14-15) and one or more contrasting areas on the object (para. 0067, lines 4-12), said areas positioned so that light emitting therefrom reaches said light sensitive panels to form images thereon and create image signals when the camera shutters are open (para.

Art Unit: 3714

0003, lines 3-5; para. 0010, lines 6-7; para. 0067, lines 20-22); (c) an image analyzer capable of discriminating between the striking instrument contrasting areas and the object contrasting areas (para. 0002, lines 1-3; para. 0017, lines 7-10; para. 0064) and determining the conditions of the path and orientation of the instrument through the field (para. 0029, lines 3-9; para. 0099, lines 3-7); and (d) wherein the striking instrument has a striking face (Figs. 5 & 14: part of the golf club that hits the ball), and wherein the striking instrument is calibrated (para. 0083) such that the single-camera system is capable of identifying the position and orientation of the striking face from the striking instrument contrasting areas (para. 0003, lines 1-7; para. 0099, lines 1-7).

However, Gobush '367 fails to disclose a single camera system and a rotatable calibration fixture having a pivot point and a plurality of predetermined contrasting areas, wherein three dimensional positions of the plurality of predetermined contrasting areas are known relative to each other. Kiraly discloses such (para. 0007, 0009, 0017-0024, 0057)

Therefore, in view of Kiraly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the aforementioned limitations in order to reduce expense and weight of having multiple cameras and also to calibrate the system through the use of one camera. While Kiraly does not disclose a pivot, it is obvious that in order to keep a fixture attached (so that it cannot be removed so easily), but yet still be able to move the fixture so that a different view of it can be taken, one of ordinary skill in the art would provide a pivot.

Art Unit: 3714

Re claim 4: Gobush '367 further discloses the system of claim 1, wherein the striking instrument is calibrated with a priori knowledge of the spatial locations of the striking instrument contrasting areas (para. 0067, lines 14-20).

Re claims 5 and 32: Kiraly discloses wherein the calibration fixture has 10 or more contrasting areas (160, Fig. 4).

Re claim 9: Gobush '367 further discloses the system of claim 1, further comprising an electronic light source that emits light in two flashes onto the instrument and object (para. 0050, lines 3-6; para. 0075, lines 1-4).

Re claim 10: Gobush '367 further discloses the system of claim 1, wherein the striking instrument has four contrasting areas and the object has six contrasting areas (para.0066; claim 18, lines 6-8).

Re claim 11: Gobush '367 further discloses the system of claim 1, wherein the instrument is a golf club (claim 27) comprising a club head and a club face (Fig. 5; Fig. 14) wherein the object is a golf ball (Fig. 4; Fig. 9; Fig. 14; claim 27), and wherein the image analyzer is capable of determining the club head path and face orientation during a swing of the club (para. 0029, lines 3-9; para. 0099, lines 3-7).

Art Unit: 3714

Re claim 12: Gobush '367 further discloses the system of claim 11, wherein the golf club is a golf club driver or iron (para. 0085, lines 15-18: it is well known in the art, that there are different types of golf clubs, including drivers, irons and putters).

Re claim 13: Gobush '367 further discloses the system of claim 11, wherein the golf club is a putter (para. 0085, lines 15-18: it is well known in the art, that there are different types of golf clubs, including drivers, irons and putters).

Re claim 14: Gobush '367 further discloses the system of claim 11, wherein the image analyzer is capable of determining the location of impact of the golf ball on the club face (para. 0099, lines 3-7).

Re claim 17: Gobush '367 further discloses the system of claim 14, wherein the accuracy of the image analyzer for determining the golf ball impact location is comparable to the accuracy of a 2-camera system (para. 0004; para. 0005, lines 8-10; para. 0029, lines 1-3; para. 0074, lines 1-7; para. 0076; para. 0087, lines 1-6).

Re claim 18: Gobush '367 further discloses the system of claim 11, wherein the image analyzer is capable of determining one or more of a droop angle, a loft angle, a face angle, a path angle, or an attack angle of the golf club (para. 0099, lines 3-7).

Art Unit: 3714

Re claim 21: Gobush '367 further discloses the system of claim 18, wherein the accuracy of the image analyzer for determining the golf club droop angle, loft angle, face angle, path angle, or attack angle is comparable to the accuracy of a 2-camera system (para. 0004; para. 0005, lines 8-10; para. 0029, lines 1-3; para. 0074, lines 1-7; para. 0076; para. 0087, lines 1-6).

Re claim 24: Gobush '367 further discloses the system of claim 1, wherein the single camera unit is capable of shuttering or gating at least three times as the striking instrument and object pass through the field of view (para. 0017, lines 5-7; para. 0031, lines 1-7).

Re claim 25: Gobush '367 further discloses a triggering unit for determining when the single camera captures an image of the striking instrument and object (para. 0031, lines 1-4).

Re claim 26: Gobush '367 further discloses the system of claim 25, wherein the triggering unit comprises a light source, a reflector, and an optical sensor (para. 0003, lines 6-7; para. 0005, lines 14-18; para. 0033, lines 1-7).

Re claim 27: Gobush '367 further discloses the system of claim 25, wherein the triggering unit comprises an ultrasonic (para. 0032, lines 7-8; para. 0033, line 1:

Art Unit: 3714

ultrasonic uses acoustic frequencies) emitter (para. 0031, line 3) and receiver (para. 0031, lines 1-2).

Re claim 28: Gobush '367 discloses a method of monitoring the movement of a striking instrument that impacts with an object (para. 0074, lines 2-7) comprising the steps of: (a) providing a single camera unit (para. 0074, lines 2-7; para. 0076, line 2) having a light sensitive panel (para. 0035, lines 1-3) that is capable of being focused on a first field of view (para. 0015, lines 2-10; para. 0017, lines 1-5); (h) placing a striking instrument having a second plurality of contrasting areas (para. 0003, lines 3-7; para. 0067, lines 14-15) within the first field of view of the single camera unit to provide a first perspective view of the striking instrument and second plurality of contrasting areas (A, Fig. 14; claim 28, lines 1-9); (i) capturing a first image of the first perspective view of the striking instrument and second plurality of contrasting areas (Figs. 12-13; claim 28, line 10); (j) providing a second perspective view of the striking instrument and second plurality of contrasting areas (B, Fig. 14); (k) capturing a second image of the second perspective view of the striking instrument and second plurality of contrasting areas (Figs. 12-13); (l) analyzing the second plurality of contrasting areas in the first and second images of the striking instrument to determine the three-dimensional positions of the second plurality of contrasting areas (para. 0017, lines 7-9; para. 0028; para. 0029, lines 6-9; claim 28, lines 11-13).

Gobush '367 discloses the above except for the following which Kiraly discloses:

(a) providing a single camera unit (para. 0017-0024);

Art Unit: 3714

- (b) providing a calibration fixture having a pivot point and a first plurality of contrasting areas, wherein three-dimensional positions of the first plurality of contrasting areas are known relative to each other (160, Fig. 4; para. 0007, 0009, 0056-58);
- (c) placing the calibration fixture at a first orientation within the first field of view (para. 0007, 0057);
- (d) capturing a first image of a first perspective view of the calibration fixture and first plurality of contrasting areas (para. 0007, 0057);
- (e) rotating the calibration fixture to a second orientation by the pivot point to provide a second perspective view of the calibration fixture and first plurality of contrasting areas (para. 0007, 0057);
- (f) capturing a second image of the second perspective view of the calibration fixture and first plurality of contrasting areas (para. 0007, 0057);
- (g) analyzing the first plurality of contrasting areas in the first and second images of the calibration fixture to create a three-dimensional global coordinate system (para. 0007).

Therefore, in view of Kiraly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the aforementioned limitations in order to reduce expense and weight of having multiple cameras and also to calibrate the system through the use of one camera. While Kiraly does not disclose a pivot, it is obvious that in order to keep a fixture attached (so that it cannot be removed so easily), but yet still be able to move the fixture so that a different view of it can be taken, one of ordinary skill in the art would provide a pivot.

Re claim 29: Gobush '367 further discloses the method of claim 28, wherein the first perspective view of the striking instrument and second plurality of contrasting areas differs from the second perspective view of the striking instrument and second plurality of contrasting areas from about 5 to about 10 degrees (para. 0038, lines 5-9).

Re claim 30: Gobush '367 further discloses the method of claim 29, wherein the step of providing a second perspective view of the striking instrument and second plurality of contrasting areas comprises repositioning the striking instrument (para. 0028; Fig. 14: to move from position A, which is the first perspective view to position B, which is the second perspective view, the club must be repositioned).

Re claim 31: Gobush '367 further discloses the method of claim 30, wherein the step of providing a second perspective view of the striking instrument and second plurality of contrasting areas further comprises maintaining the first field of view of the single camera unit (para. 0017, lines 5-6).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '896 (US 2002/0155896). The teachings of Gobush '367/Kiraly have been discussed above.

However, Gobush '367/Kiraly fails to disclose the striking instrument, which is calibrated such that the spatial location of the contrasting areas are known relative to the geometric center of the striking face.

Gobush '896 teaches the striking instrument, which is calibrated such that the location of the contrasting areas (markers) are known relative to the center of the striking face (para. 0100).

Therefore, in view of Gobush '896, it would have been obvious to one of ordinary skill in the art at the time the invention was made to calibrate the striking instrument such that the location of the contrasting areas are known relative to the center of the striking face in order to obtain a more accurate measurement of the striking instrument's swing characteristics.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '896 (US 2002/0155896). The teachings of Gobush '367/Kiraly have been discussed above.

However, Gobush '367/Kiraly fails to disclose the striking instrument, which is calibrated such that the body coordinates of the striking instrument are known relative to the striking instrument contrasting areas.

Gobush '896 teaches the striking instrument, which is calibrated such that the coordinates of the striking instrument are known (para. 0099, lines 1-2) relative to the striking instrument contrasting areas (para. 0100, lines 1-6).

Therefore, in view of Gobush '896, it would have been obvious to one of ordinary skill in the art at the time the invention was made to calibrate the striking instrument such that the coordinates of the striking instrument are known relative to the striking

Art Unit: 3714

instrument contrasting areas in order to obtain a more accurate measurement of the striking instrument's swing characteristics.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '719 (US 5,575,719). The teachings of Gobush '367/Kiraly have been discussed above.

However, Gobush '367/Kiraly fails to disclose a calibration attachment having a plurality of contrasting areas, wherein the calibration attachment is capable of being disposed on the striking face, and wherein the position of at least one contrasting area of the calibration attachment is known relative to the striking face when the calibration attachment is disposed on the striking face.

Gobush '719 teaches a calibration attachment (32, Fig. 7) having a plurality of contrasting areas (31a-31c, Fig. 7), wherein the calibration attachment is capable of being disposed on the striking face (32, 7f, Fig. 7), and wherein the position of at least one contrasting area of the calibration attachment is known relative to the striking face when the calibration attachment is disposed on the striking face (col. 4, lines 5-28).

Therefore, in view of Gobush '719, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a calibration attachment having a plurality of contrasting areas, wherein the calibration attachment is capable of being disposed on the striking face, and wherein the position of at least one contrasting area of the calibration attachment is known relative to the striking face when the

Art Unit: 3714

calibration attachment is disposed on the striking face, in order to obtain a more accurate measurement of the striking instrument's swing characteristics.

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '719 (US 5,575,719). The teachings of Gobush '367/Kiraly have been discussed above.

However, Gobush '367/Kiraly fails to disclose the single camera unit configured to capture at least one image of the striking instrument when it is within about 2 inches or less from the object. Gobush '367/Kiraly also fails to disclose the single camera unit configured to capture at least one image of the striking instrument when it is within about 1 inch or less from the object.

Gobush '719 teaches the single camera unit configured to capture at least one image of the striking instrument when it is within the object (Fig. 5; col. 5, lines 1-15; col. 5, lines 35-37: it doesn't matter how many inches the club is away from the ball, as long as the club and ball are within the camera's view, the cameras are capturing the electronic images).

Therefore, in view of Gobush '719, it would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the single camera unit to capture at least one image of the striking instrument when it is within the object within camera view in order to obtain a more accurate measurement of the striking instrument's swing characteristics.

Art Unit: 3714

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '719 (US 5,575,719). The teachings of Gobush '367/Kiraly have been discussed above.

However, Gobush '367/Kiraly fails to disclose the accuracy of the image analyzer for determining the golf ball impact location within 0.25 inch.

Gobush '719 teaches the accuracy of the image analyzer for determining the golf ball impact location within 0.25 inch (col. 7, 1st table, 7th "Type of Measurement" under col. "Standard Deviation").

Therefore, in view of Gobush '719, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an accuracy of the image analyzer for determining the golf ball impact location within 0.25 inch in order to obtain a more accurate measurement of the golf ball impact location.

8. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '719 (US 5,575,719). The teachings of Gobush '367/Kiraly have been discussed above.

However, Gobush '367/Kiraly fails to disclose the accuracy of the image analyzer for determining the golf club droop angle, loft angle, face angle, path angle, or attack angle within 3 degrees. Gobush '367/Kiraly also fails to disclose the accuracy of the image analyzer for determining the golf club droop angle, loft angle, face angle, path angle, or attack angle within 1 degree.

Art Unit: 3714

Gobush '719 teaches the accuracy of the image analyzer for determining the path angle within 1 degree (col. 7, 1st table, row 9 under col. "Standard Deviation").

Therefore, in view of Gobush '719, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an accuracy of the image analyzer for determining the path angle within 1 degree in order to obtain a more accurate measurement of the path angle.

9. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '719 (US 5,575,719). Gobush '367/Kiraly further discloses the accuracy of the image analyzer for determining club head velocity (para. 0099, lines 3-7) comparable to the accuracy of a 2-camera system (para. 0004; para. 0005, lines 8-10; para. 0029, lines 1-3; para. 0074, lines 1-7; para. 0076; para. 0087, lines 1-6).

However, Gobush '367/Kiraly fails to disclose the image analyzer capable of determining the club head velocity with an accuracy within 20 feet per second.

Gobush '719 teaches the accuracy of the image analyzer for determining the image analyzer capable of determining the club head velocity with an accuracy within 20 feet per second (col. 7, 1st table, rows 1-3 under col. "Standard Deviation").

Therefore, in view of Gobush '719, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the image analyzer capable of determining the club head velocity with an accuracy within 20 feet per second in order to obtain a more accurate measurement of the club head velocity.

10. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '383 (US 5,471,383). Gobush '367/Kiraly discloses the above except for a first axis of the global coordinate system parallel to gravity, a second axis of the global coordinate system directed toward a target, and a third axis of the global coordinate system orthogonal to the first and second axes.

Gobush '383 discloses such (col. 11 and 12). Therefore, in view of Gobush '383, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the aforementioned limitations in order to align the sensor panel in the camera. (col. 11, lines 65-67).

11. Claims 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '896.

Re claim 34: Gobush '367/Kiraly discloses the above except for wherein the steps of capturing the first image of the first perspective view of the striking instrument and capturing the first image of the first perspective view of the calibration fixture are performed at the same time.

Gobush '896 discloses such (para. 0075, lines 11-16). Therefore, in view of Gobush '896, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the aforementioned limitations in order to calibrate the striking instrument.

Re claim 36, as understood: Kiraly discloses wherein the steps of capturing the second image of the second perspective view of the striking instrument and capturing the second image of the second perspective view of the calibration fixture are performed at the same time (para. 0007, 0057). While Gobush '367/Kiraly fail to disclose taking a second image of the second perspective view of the striking instrument, it would be obvious to one of ordinary skill in the art to take a second image of the fixture with the instrument as in claim 34 because of the single camera (in a 2 camera system, each camera takes an image for a total of 2 images).

12. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush '367/Kiraly in view of Gobush '719 (US 5,575,719).

Gobush '367/Kiraly discloses the above except for the following which Gobush '719 discloses: providing a calibration attachment (32, Fig. 7) having a third plurality of contrasting areas (31a-31c, Fig. 7), wherein the three-dimensional positions of the third plurality of contrasting areas on the calibration attachment are known relative to each other (col. 4, lines 5-28); placing the calibration attachment on a striking face of the striking instrument so that the first and second captured images of the first and second perspective views of the striking instrument and second plurality of contrasting areas further comprise images of the third plurality of contrasting areas (col. 3, lines 66-67; col. 4, lines 19-21); and removing the calibration attachment from the striking face (col. 4, lines 27-28).

Therefore, in view of Gobush '719, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the aforementioned limitations in order to calibrate the striking face and improve the accuracy of the single camera system.

Response to Arguments

13. Applicant's arguments, see pages 15-16 of Remarks, filed 3/29/2007, with respect to the drawings, the written description, the claims, and 35 U.S.C. Section 112 have been fully considered and are persuasive. The objections have been withdrawn.

14. Applicant's arguments, see pages 16-17 of Remarks, filed 3/29/2007, with respect to the rejection(s) of claim(s) 1, 28, and their dependent claims under 35 U.S.C. Sections 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kiraly, which discloses a one-camera system.

15. Applicant's arguments, see page 18 of Remarks, filed 3/29/2007, with respect to claim 16 have been fully considered and are persuasive. The rejection of claim 16 has been withdrawn.

Allowable Subject Matter

16. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 3714

17. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to disclose an image analyzer for determining the golf ball impact location with an accuracy within 0.1 inch. While Gobush '719 discloses accuracy within 0.25 inch, it does not disclose an accuracy within 0.1 inch. In addition, Reda does not use an image analyzer.

Conclusion


18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eian discloses a system and method for three-dimensional video imaging using a single camera. Stivers discloses a golf ball flight monitoring system. Rankin discloses methods, apparatus and computer program products for processing images of a golf ball. Yamamoto discloses a ball motion measuring apparatus. Miki discloses a method and apparatus of measuring three-dimensional posture of sphere and method of measuring rotational amount of sphere and direction of rotational axis thereof.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Leung whose telephone number is 571-270-1342. The examiner can normally be reached on Mon -Thur, every other Fri.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert E. Pezzuto can be reached on 571-272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jennifer Leung
June 30, 2007



Robert E. Pezzuto
Supervisory Patent Examiner
Art Unit 3714